INTEGRATED SAFETY MANAGEMENT SYSTEM (ISMS) PROGRAM DESCRIPTION

1.0 Purpose and Objective

The Brookhaven Site Office (BHSO) Integrated Safety Management Program Description (ISM-PD) implements the requirements of DOE M 450.4-1, *Integrated Safety Management System Manual*. The ISM-PD is consistent with established DOE safety directives and the Office of Science (SC) approach to Integrated Safety Management (ISM) as described in the SC Management System (SCMS). It is the primary program description that describes how BHSO works in a safe and in an environmentally sound manner. BHSO has other documents (e.g. procedures) and processes that support overall BHSO Integrated Safety Management System.

The ISM-PD is integrated with the BHSO Quality Management Plan, the Environmental, Safety, and Health (ES&H) Management Plan[1], SC Function, Responsibilities and Authorities Manual (FRAM), and the BHSO FRAM. The BHSO Integrated Safety Management program is also integrated in BHSO's business processes for work definition and planning, budgeting, authorization, execution, financial management, performance measurement, and performance evaluation.

The objective of developing and maintaining this ISM-PD is much more than a simple paper exercise where BHSO identifies activities and processes being accomplished to fulfill ISM principles and functions. Rather, it spurs real and ongoing dialogue exploring areas to improve and further ISM implementation. Senior BHSO senior management, as well as individual contributors, understand the value of integrated safety management and are engaged to sustain and improve this program.

2.0 Scope

The ISM-PD describes the safety processes used by BHSO employees and BHSO subcontractor employees only. It also provides an overview of BHSO's approach to performing oversight of ISM of the contractor for the Brookhaven National Laboratory (BNL).

3.0 Roles and Responsibilities

3.1. Federal Roles, Responsibilities, Accountabilities and Authorities (R2A2s)

As part of the OneSC Project, SC developed Site Office R2A2s. These R2A2s include safety-related responsibilities. BHSO has developed the Site Office Functions, Responsibilities, and Authorities Manual (FRA) that includes R2A2s which describe how roles and responsibilities are flowed down from the SC R2A2s to BHSO management and staff. The primary means used for defining specific safety responsibilities within BHSO include identification of position-

1 The ES&H Management Plan describes how BHSO performs it's oversight of the contractor.

specific responsibilities, identification of expectations within Performance Evaluation Plans (PEP), and identification of oversight requirements within BHSO procedures (e.g., Performance Assurance, Proposal and Work Authorization, and Facility Representative procedures).

3.2. Federal Functions and Delegations

DOE Policy 411.1, *Safety Management Functions, Responsibilities and Authorities Policy*, and DOE Manual 411.1-1C, *Safety Management Functions, Responsibilities, and Authorities Manual (FRAM)* identify the organizational functions and delegations for safety-related responsibilities within DOE. These directives, as well as other safety-related directives referred to by them, provide the high level framework for understanding the specific safety management requirements for DOE management and staff.

4.0 Implementation of ISM

BHSO functions are "non-operational" work activities as defined in DOE M 450.4-1. That is, they do not involve hands-on work but rather include activities such as defining work scopes, allocating resources, reviewing and approving program documents (safety basis, contractor annual ISM declarations, etc.), and conducting operational awareness activities (e.g. assessments, surveillances, and walk throughs). While these activities are non-operational, they do include hazards associated with typical office environments (e.g., repetitive motion activities, uneven walking surfaces, use of electrical equipment, and office sanitation) as well as potential hazards associated with performing oversight activities at DOE contractor facilities. Implementation of ISM for BHSO work activities is addressed in Sections 4.1 and 4.2 below.

In addition, because of BHSO's roles and responsibilities for contract management and oversight, BHSO plays a critical role in assuring that ISM is efficiently and effectively implemented at the BNL. The role of BHSO oversight in the implementation of ISM is addressed in Section 4.3 below.

4.1. Implementation of ISM Guiding Principles for BHSO Work Activities

4.1.1. Line Management Responsibility for Safety.

Line management responsibility for safety is clearly described within the BHSO Functions, Responsibilities and Authorities Manual and BHSO operating procedures. Procedures include a responsibilities section that identify that line management is responsible for safety.

Key BHSO attributes of this principle include, but not limited to:

- BHSO line management spend time touring facilities with DOE Facility Representatives and Subject Matter Experts/Authorities

(SME/A). BHSO managers practice visible leadership in the field, coaching and mentoring BHSO staff, correcting deviations promptly, and, when appropriate, providing positive reinforcement.

- BHSO line management set an example for safety through their direct involvement in Facility Representative and SME/A activities. They encourage open, honest feedback and continuously look for opportunities to improve.

- BHSO line managers maintain a strong focus on conducting work safely. They are leading advocates to maintain situational awareness, watch carefully for adverse trends or indications, and take prompt action to understand underlying causes.

- BHSO line management supports a "just culture". BHSO line management understands that humans are fallible and when mistakes are made, the management team seeks to first learn as opposed to blame.

4.1.2. Clear Roles and Responsibilities.

Organizational roles and responsibilities are defined in the BHSO Functions, Responsibilities and Authorities Manual and procedures.

Key BHSO attributes of this principle include, but are not limited to:

- All BHSO personnel understand the importance of adherence to safety standards.

- Reporting relationships, positional authority, staffing levels and capability, organizational processes, and financial resources are commensurate with and support fulfillment of assigned and delegates safety responsibilities.

- Responsibilities and authority for safety are well defined and clearly understood as integral part of performing work.

4.1.3. Competence Commensurate with Responsibilities.

The BHSO personnel training and qualification process is described in the BHSO Quality Management Plan (BHSO-ADM-11). In addition, BHSO has developed the technical staffing and qualification plans for safety assurance (BHSO-OA-22) and Facility Representatives (BHSO-OA-13).

Key BHSO attributes of this principle include, but not limited to:

- BHSO maintains a highly knowledgeable staff to support a broad spectrum of operational and technical decisions. Outside expertise is employed when necessary, e.g. SC Integrated Support Center for nuclear safety, non-ionizing radiation, etc.

- BHSO encourages and provides training, professional certifications, and access to seminars to broaden individual capabilities and to support organization learning.

- BHSO managers have strong technical and operational backgrounds to support managing a technical and diverse organization.

- BHSO values continuous learning. BHSO line managers set an example for safety through personal commitment and learning.

4.1.4. Balanced Priorities.

BHSO is committed to effectively allocate resources to address safety, programmatic, and operational considerations. In addition, with guidance from the SC Chief Operating Officer, priorities and goals are documented in the Site Office Annual Plan.

Key BHSO attributes of this principle include, but are not limited to:

- BHSO management has and continues to actively support funding of safety-related equipment, e.g., safety glasses, ergonomic chairs, etc.).

- BHSO management consistently communicates the safety message, both as an integral part of the BHSO mission and as a stand-alone message, e.g. BHSO safety day.

- The BHSO organization expresses a strong sense of mission and operational goals, including a commitment to highly reliable operations with safety at the forefront.

4.1.5. Identification of Safety Standards and Requirements.

Before work is performed, BHSO evaluates hazards and agreed upon safety standards/requirements that when properly implemented, protects the public, the workers, and the environment. Safety standards and requirements applicable to BHSO employees are identified in the BHSO Federal Employee Occupational Safety and Health (FEOSH) Program (BHSO-ADM-05), and/or applicable DOE safety standards.

Key BHSO attributes of this principle include, but are not limited to:

- Implementing procedures and program descriptions are in place to translate requirement actions. Applicable requirements from rules and regulations are identified and captured in procedures.

- Compliance with applicable safety requirements is expected and verified. Willful violations of requirements are not tolerated, and personnel are held accountable.

4.1.6. Hazard Controls Tailored to Work Being Performed.

BHSO evaluates hazards and tailors administrative controls to prevent and mitigate hazards. Safety standards and requirements applicable to BHSO employees are identified in the BHSO Federal Employee Occupational Safety and Health (FEOSH) Program (BHSO-ADM-05), and/or applicable DOE safety standards.

Key BHSO attributes of this principle include, but are not limited to:

- BHSO emphasizes that work be designed to reduce or eliminate the hazards and to prevent accidents and unplanned releases and exposures.

- BHSO implements hazard controls that are consistent. Safety is embedded in day-to-day processes and procedures through a committed safety culture and functioning safety management program.

- Office equipment and building structure (e.g. file cabinets, chairs, computers) are consistently maintained so that it meets design requirements.

4.1.7. Operations Authorization.

In most cases, the authorization to perform oversight activities is implicitly given through PEPs that are signed and agreed to between BHSO supervisors and staff. BHSO also has a New Employee Orientation procedure, BHSO-ADM-02, that identifies further training to perform oversight activities (e.g., General Employee Training, HAZWOPER, Radiation Worker Training, etc.).

Key BHSO attributes of this principle include, but not limited to:

- BHSO has a formal authorization agreement in place. The authorization agreement is the Facility Use Agreement (FUA).

- BHSO personnel maintain an awareness of all facility activities to ensure compliance with the FUA.

4.2. Implementation of ISM Core Functions for BHSO Work Activities

BHSO is firmly committed to all 5 core functions of the Integrated Safety Management System. BHSO has in place the Federal Employee Occupational Safety and Health (FEOSH) Program. The FEOSH program is documented in a procedure and includes processes by which work is defined and performed, hazards are identified and analyzed, and controls are implemented. Feedback and improvement is implemented through the BHSO Quality Management Plan.

BHSO recognizes that it's role is important for assuring safety, and that it needs to be clearly articulated in this ISM program description. BHSO performs work activities that are related to every ISM principle and function. BHSO does not perform "operational work activities" involving physical, hands-on work, such as processing or transferring environmental waste and conducting high-energy physics research. "Operational work activities" are the focus of ISM in that physical work activities are the main source of active human errors that can lead to facility occurrences and organizational accidents. Some occurrences are initiated by equipment failures, such as tank failures; in these cases, an "operational work activity" usually exists to monitor performance of equipment that controls hazards. "Operational work activities" are concentrated within the ISM core function #4, "perform work safely within controls." They are also concentrated at the activity-level, rather than the organizational level.

BHSO performs a myriad of non-operational work activities that are essential for assuring safety during the conduct of "operational work activities." These non-operational work activities include defining work scopes, allocating resources, designing safety controls, developing safety analyses, conducting assessments, developing corrective action plans, and integrating feedback sources to identify opportunities for improvement. Non-operational work occurs away from the human-facility interface. Non-operational work activities encompass the vast majority of BHSO work related to effectively implementing the ISM principles to create the requisite environment and culture that supports effective ISM implementation.

Non-operational work activities encompass most of BHSO work related to effectively implementing four of the five core ISM functions, all but the fourth one, which is the point at which people directly and physically interact with the facility. Non-operational work activities encompass the vast majority of BHSO work at the organizational level. Non-operational work activities are the source of latent conditions that enable active errors during operational work activities that can lead to undesirable consequences. When planning, performing, and reviewing the effectiveness of non-operational work activities, the ultimate result is the impact of these work activities on safety performance of associated operational work activities. The associated operational work activities should remain the focus of non-operational work activities, not the physical work

involved in the non-operational work activities, such as turning on the computer, performing a calculation, participating in a meeting, or printing a document.

Examples of inherent BHSO non-operational work activities that are required for the overall Department-wide ISM system to be effective, and to integrate safety effectively into operational work being accomplishment in BNL facilities, include, but not limited too:

- Providing clear and visible leadership vision on the ISM system;
- Establishing a positive environment for effective ISM system implementation;
- Establishing missions and translating the mission into meaningful scopes of work;
- Establishing annual budgets, including making decisions on mission-safety trade-offs;
- Evaluating resource short-falls and identifying safety problems to ensure adequate resources are applied to resolve safety problems and secure safety improvements;
- Establishing DOE contracts, including delineation of safety requirements;
- Reviewing and approving contractor safety documentation, such as documented safety analyses, technical safety requirements, ISM Systems, Quality Assurance Programs, worker safety and health programs, and contractor assurance systems;
- Determining when authorization agreements are needed and approving authorization agreements;
- Maintaining Federal awareness of contractor work activities, including implementation of hazard controls;
- Maintaining operational awareness;
- Establishing and implementing feedback and improvements programs and processes to facilitate a culture that promotes ongoing examination and learning;
- Monitoring various sources of feedback information;
- Developing, and implementing corrective actions and improvement actions;

- Monitoring performance of corrective action and improvement action sub-systems;

- Planning and performing self-assessments of assigned federal work activities;

- Planning and performing oversight of contractor work activities;

Safety improvement comes when each of the 5 core functions are performed in an integrated, effective manner. Therefore, this ISM program description serves to facilitate and focus thinking and planning of an appropriate approach to safety management, and organizing and implementing the necessary follow-through activities. This ISM-PD is also expected to capture and institutionalize future changes and improvements to the approach during annual updates thus providing new organization members with a road-map to see the full-integrated vision.

4.3. Oversight of ISM at BNL

The protection of the public, the workers, and the environment through safety management is a primary responsibility of DOE line management. This responsibility includes planning, direction, and oversight of activities designed to ensure safety in all activities. There is an unbroken line of managers who are fully committed to performing work safely that extends from the Secretary of Energy to each individual worker. While performing the work safely is the personal responsibility of every individual, it is management's responsibility to ensure that this safety philosophy is established and nurtured and that safety management programs are implemented consistent with the level of hazards and risks of each operation. As the line manager with responsibility for BNL contract management and day-to-day oversight of safety management, the BHSO plays a key role in that unbroken chain.

The BHSO utilizes a combination of *direction, oversight, and approval* activities to accomplish its safety management roles and responsibilities. A key tool used by BHSO to provide *direction* is the BNL Contract. The Contract provides specific direction to the contractor regarding development, implementation, and approval of safety management processes. The processes used for *oversight* of the BNL Contract and for providing stewardship of the Laboratory is captured in the BHSO Management Oversight Procedure and associated documents and procedures (e.g., Contract Management Plan, Performance Evaluation and Measurement Plan, Performance Assurance Procedure, etc.).

The key safety management requirement identified in the BNL Contract is Clause I-87, which refers to DEAR Clause 970.5223-1 "Integration of Environment, Safety, and Health into Work Planning and Execution (Dec 2000)". In responding to these requirements, the Laboratory Contractor has developed an Integrated Safety Management Improvement Plan (ISM-IP) which has been reviewed and approved by BHSO. The ISM-IP Program Description is a *living*

document that defines how the Laboratory meets the Core Functions and Guiding Principles of Integrated Safety Management and provides a series of action commitments that meet specific performance objectives, measures, and commitments related to safety management. Through update of the Contract, annual review and approval of objectives, measures, and commitments, and day-to-day oversight and evaluation of safety performance, the BHSO fulfills its safety management responsibilities. In addition, the BHSO utilizes information and data provided in the annual BNL Self Evaluation Report, various independent assessments (e.g., ISO 14001 certification, EPA Performance Track Reviews, regulator inspections, etc.), and performance metrics (e.g., DART, TRC, etc.) to determine Laboratory performance related to safety management. The BHSO tracks its own performance related to meeting these responsibilities through program reviews.

BHSO conducts safety *oversight* and *approvals* through the following five (5) key functions:

- Contract Management
- Performance Assurance
- Work Authorization
- Safety Subject Matter Experts/Authorities (SME/SMA)
- Facility Representative Oversight.

Principally speaking, the Contract is used to define requirements and performance expectations, the Performance Assurance approach is utilized to assure the Contractor is effectively meeting requirements, Work Authorization is used to approve work scope and funding, and Safety SME/SMA and Facility Representative Oversight is used to monitor day-to-day operations.

4.3.1. Contract Management

The BHSO utilizes the BNL Contract to identify specific safety-related requirements that the Contractor must adhere to and to set expectations related to safety management. A key contract expectation is that the Contractor is responsible to define and document a management approach and system that is satisfactory to DOE. This expectation specifically includes management controls, an integrated safety management system, and an assurance process, which reflect an understanding of the risks, maintains mechanisms for eliminating or mitigating risks, and maintains a process to ensure that the objectives of the management systems are being effectively accomplished. BHSO develops specific performance criteria in the Contract Performance Evaluation and Measurement Plan (PEMP) and monitors and evaluates performance against these criteria throughout the year.

4.3.2. Performance Assurance

The BHSO conducts performance assurance to establish contractor accountability in defining, documenting and implementing their management approach and system. This is accomplished through oversight for the BNL management system areas (including Integrated Safety Management, Worker Safety and Health, Radiological Control, Facility Safety, Environmental, etc.) and the programmatic areas (Biology, Nanomaterials, Collider-Accelerator, Environmental Sciences, etc). Since integrated safety management (ISM) relies directly or indirectly on all management systems and programs, BHSO assurance activities represent a primary means by which collective ISM oversight is achieved. These oversight activities are conducted to identify specific requirements for setting expectations, conducting performance assurance activities, documenting results, and conducting analysis of results. This process relies on BHSO subject matter experts (SMEs) to make independent judgments in evaluating the adequacy of contract requirements, the appropriate translation of those requirements into management systems, processes, and procedures, and the effectiveness of implementation.

4.3.3. Work Authorization

The BHSO authorizes work in accordance with the BHSO oversight process for the Laboratory Directed Research and Development Program Procedure and the Work For Others for the BHSO Procedure. Work is also authorized through the approval of environmental permits, safety authorization approvals (e.g. Document Safety Analysis), and quality assurance programs. In addition, BHSO participates in the contractor's project planning process.

4.3.4. Operational Awareness Oversight

The SME/SMA and Facility Representative's (FR) perform Operational Awareness activities. Their primary duty is to provide oversight of contractor operations. Oversight performed by SME/SMA and FRs provides management with accurate and objective information on the effectiveness of contractor work performance and practices, including implementation of the integrated safety management system. SME/SMA and FRs perform oversight for their assigned facilities and/or programs to:

- Determine whether the contractor is performing work and operating facilities safely.

- Perform assessment and verify the contractor's management system is effectively controlling conduct of operations and implementing ISM objectives, principles, and functions.

- Provide management with timely information concerning facility events, conditions, activities, and operational performance.

- Provide effective lines of communication between DOE and its operating contractors during periods of normal operation and following reportable events.

- Evaluate contractor corrective actions taken in response to events, conditions, and performance issues.

4.4. Integration with Key BHSO Programs and Documents

The BHSO ISM Program relies almost exclusively on existing processes and procedures to meet the requirements of ISM. As such, Appendix A provides a crosswalk showing how existing BHSO processes, articulated in BHSO documents, meet the specific Core Functions and Guiding Principles of ISM. Integration of these processes into one management approach provides BHSO with the most efficient and effective means for achieving ISM.

In the BHSO framework, ISM is not itself a management system or process, but rather is a set of principles and functions that are met through standard BHSO processes that are applied to all responsibilities, not just safety. For example, oversight of the areas of environmental management and safeguards and security is conducted following the same performance assurance process that is used for safety. In this way, BHSO uses one systematic process for all oversight regardless of the functional area, thereby allowing full integration while still achieving effective oversight.

5.0 Annual ISM Maintenance and Improvement Processes

5.1. ISM Program Description Maintenance and Improvement

This Program Description will be reviewed at least annually to determine whether updates are needed. If no changes are needed to maintain the Description complete, accurate, and up-to-date, then no annual update will be necessary. A statement to this effect will be included in the annual ISM summary evaluation. If changes are needed, these will be approved by the Site Office Manager.

5.2. ISM Annual Oversight, Effectiveness Reviews and Self-Assessments

Annual reviews of ISM will be conducted consistent with the oversight approach described in Section 4.3 above and will be scheduled in the annual BHSO Integrated Assessment Schedule (IAS). In addition, BHSO will conduct a self-assessment as part of the annual evaluation process described in Section 5.4.

5.3. ISM Annual Safety Performance Objectives, Measures and Commitments

BHSO will update its safety performance objectives, measures, and commitments on an annual basis through development Annual Performance Plan. The AAP is developed based on guidance from the SC Chief Operating Officer.

5.4. ISM Annual Summary Evaluation Process

An annual ISM effectiveness review will be conducted by BHSO to:

- Determine the effectiveness of the ISM system in integrating safety into work performance, in supporting the safe performance of work, and in improving safety performance.
- Identify strengths of ISM system implementation for sharing with other DOE elements to aid improvements at other locations.
- Identify weaknesses of ISM system implementation to focus attention on corrective and improvement actions.
- Identify opportunities for improvement in efficiency or effectiveness of the ISM system, and identify actions for continuous improvement.

The Annual ISM effectiveness review is a qualitative review that involves multiple elements, including review against quantitative performance measures. Elements of this review are ongoing throughout the year, and will culminate in a review report that supports an annual summary evaluation. The approach for this review and steps to be considered during the review are provided in Appendix B.

6.0 Change Control

The BHSO ISM-PD will be reviewed periodically (at least annually) and updated as appropriate. The formally approved version of the document will be located on the BHSO shared drive. The BHSO ISM Champion has the lead responsibility for developing revisions to the ISM-PD in response to changes.

END

Preparer: _____ Date:_____
Procedure Coordinator: _____Date: _____
Division Director: _____Date: _____
Site Manager: _____ Date: _____

Appendix A: Matrix of ISM with Key BHSO Documents/Approaches

ISM Guiding Principles (GPs) and Core Functions (CFs)	BHSO Work Activities						Oversight of BNL			
	FEOSH	QAPD	FRA	PRO	PEP	R2A2	PA	CM	WA	FR
GP1 – Line Management Responsibility for Safety			X	X			X			
GP2 – Clear Roles and Responsibilities			X	X		X	X	X		
GP3 – Competence Commensurate w/Responsibility		X	X		X		X			
GP4 – Balanced Priorities				X			X			
GP5 – ID of Safety Standards and Requirements			X	X		X	X	X		
GP6 – Hazard Controls Tailored to Work	X						X			X
GP7 – Operations Authorization			X	X	X	X	X			X
CF1 – Define the Work	X						X	X	X	
CF2 – Identify and Analyze the Hazards	X			X			X		X	X
CF3 – Identify and Implement Controls	X			X			X			X
CF4 – Perform Work Within Controls	X			X			X			X
CF5 – Feedback and Improvement		X					X			X

FEOSH = Federal Employees Occupational Safety and Health Plan
QAPD = Quality Management Plan
FRA = Functions, Responsibilities, and Authorities Manual
PRO = Procedure, Guidance Document, and/or Program Description
PEP = Performance Evaluation Plans
R2A2 = Roles, Responsibilities, Accountabilities, and Authorities
PA = Performance Assurance (of Management Systems and Programs)
CM = Contract Management
WA = Work Authorization
OA = Operational Awareness Oversight

Appendix B: Annual ISM Summary Evaluation Approach

The following steps will be considered for the annual ISM summary evaluation review:

- Review the annual ISM review(s) and summary evaluation(s) performed by the contractor(s).
- Review the safety performance of the contractor(s) against the previous year's Safety Performance Objectives, Measures, and Commitments.
- Review the overall safety performance of the contractor(s), including results from various streams of feedback and improvement information.
- Review results of line oversight of the contractor(s); these line oversight reviews can and should be conducted throughout the year, as required by DOE Order 226.1, *Implementation of Department of Energy Oversight Policy.*
- Review the completeness and accuracy of the ISM System Description of the contractor(s).
- Determine whether a major ISM assessment of the contractor(s) is needed.
- If full, formal ISM assessment is needed, perform it using guidance below.
- If full, formal ISM assessment is not needed, document review and conclusions regarding effectiveness of the ISM program implementation by the contractor(s), basis for conclusions, strengths and weaknesses and areas for improvement.
- If more than one contractor, look at all ISM program performance across all the contractors to identify and document any generic or broad-based strengths or weaknesses or areas for improvement.
- On DOE side, review self-assessment results regarding DOE ISM performance; these self-assessment reviews can and should be conducted throughout the year.
- Review DOE site office performance against the previous year's Safety Performance Objectives, Measures, and Commitments.
- Review the completeness and accuracy of the ISM System Description of the DOE field office, and make necessary changes. Determine whether an update is necessary. If an update is made, prepare a summary of changes.
- Review integrated DOE/contractor safety performance, including results from various sources of feedback and improvement information, including external and independent oversight findings.
- Based on all the prior reviews, reach an overall conclusion regarding the state of ISM effectiveness: (1) ISM is not being effectively implemented, (2) ISM is being effectively implemented, but noteworthy weaknesses need to be addressed, or (3) ISM is being effectively implemented. Provide the basis for this summary evaluation. Provide any immediate corrective or compensatory actions that must be taken.
- Prepare the annual summary evaluation report that documents the overall review process and conclusions regarding effectiveness of ISM system by the DOE office, basis for conclusions, strengths and weaknesses and areas for improvement, and corrective and improvement actions, with schedules for completion.